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ABSTRACT

The report describes goals and accomplishments of a project to develop and validate an assessment battery of leisure functioning in handicapped children. The battery was intended to meet the need created by the Education for All Handicapped Children Act and provide data for the assessment of recreation and leisure functioning as part of the student's overall individualized education program. Two versions of the leisure diagnostic battery (LDB) were developed: one for disabled students (9-15 years old) with normal cognitive development and one for 9-15 year olds with educable mental retardation. Project objectives and tasks for the 3 years are detailed, and a summary charts the project's evolution by year. The LDB's conceptualization and development are discussed in terms of its basis in perceived freedom and leisure (with implications for perceived control, competence, and intrinsic motivation); its process of assessment through remediation; and the components, purposes, and domains of the LDB scales. Field test data for reliability and validity of both versions are reported. (CL)

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EXECUTIVE SUMMARY

The Leisure Diagnostic Battery Project

"Development and Validation of a standardized Leisure Diagnostic Battery (LDB) to Assess Leisure Functioning of Handicapped Children and Youth."

July 1, 1979 - August 31, 1982

A grant under Field Initiated Handicapped Research (13-443).
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*Dr. Compton served as Project Director from 1979-1981
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Introduction

The primary purpose of the Leisure Diagnostic Battery Project was to develop and validate a battery for handicapped children and youth to assess leisure functioning. In addition, the project was intended to produce and field test a User's Manual and a Remediation Guide. The overall intent of the project was to fill the need created by PL 94-142, the Education for All Handicapped Act, for the assessment of recreation and leisure functioning as a part of a student's overall Individualized Educational Plan (IEP).

Two versions of the LDB have been developed. Version "A" is designed for use with 9-15 year old youth who have "normal" cognitive functioning. It has been used with orthopedically impaired individuals, deaf individuals, asthmatic individuals, and students in public schools. Version "B," on the other hand, is designed for use with 9-15 year old educable mentally retarded individuals. Version B has been applied to mentally retarded individuals in institutional as well as community settings.

The major differences between Version A and B are their response format and the administrative procedures. Version A is completed by the client, who reads an item and indicates, on a three-point scale, the extent to which that item describes, or "sounds like" him/her. Version B is somewhat different. All items from Version A are reworded to form questions. These questions are read to the client, who may respond either "yes" or "no." A Version item might be, for example, "I am a good player."

The Version B counterpart is "Are you a good player?" Because of the question and answer dialogue, Version B requires individual, one-to-one administration.

Overall Project Objectives for the three years were as follows:

Principle Objective 1.0 - To develop a diagnostic battery to assess the level of leisure functioning of exceptional children and youth.

Task 1.1 - Identify the variables to be measured by the diagnostic battery

Subtask 1.1.1 - Review and summary of the literature.

Subtask 1.1.2 - Submit the list of variables to a jury of experts for rank ordering*

Subtask 1.1.3 - Determine the combined priority of variables based on the content analysis and jury of expert's rating*

Task 1.2 - Develop the format by which each variable will be measured

Task 1.3 - Develop the diagnostic battery for assessment of leisure functioning

Task 1.4 - Determine the testing protocol for administration, utilization, and interpretation of the LDB

Subtask 1.4.1 - Conduct a review of standardized testing protocol

Subtask 1.4.2 - Select the most acceptable and appropriate approach

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*Subtask adjusted during Year One of project.

Subtask 1.4.3 - Prepare the manual of testing protocol for the LDB

Principle Objective 2.0 - To validate the LDB administration and scoring materials.

Task 2.1 - To determine the face, nominal, and content validity of the LDB

Task 2.2 - To determine the internal validity and reliability of the LDB

Task 2.3 - To determine the external and predictive validity of the LDB

Task 2.4 - To determine the clarity and utility of the administration and scoring materials

Task 2.5 - To make appropriate revisions in the LDB

Principle Objective 3.0 - To collect and compare normative data on the LDB.

Task 3.1 - Identify and select the target population

Subtask 3.1.1 - Identify and select the "normal" population

Subtask 3.1.2 - Identify and select the mentally retarded population

Subtask 3.1.3 - Identify and select the orthopedically impaired population

Task 3.2 - Administer the LDB to the selected population groups (e.g., normal, mentally retarded, and orthopedically impaired).

Task 3.3 - Analyze the responses from administration of the LDB

Task 3.4 - Statistically compare the normal and exceptional populations on selected variables

Principle Objective 4.0 - To prepare a guide for utilizing the LDB in developing an Individualized Education Plan (IEP) for exceptional children and youth.

Task 4.1 - To determine the components of the IEP for leisure functioning of exceptional children and youth

Task 4.2 - To determine the content of the IEP guide

Task 4.3 - Prepare the IEP guide

Task 4.4 - Pilot test and review the IEP guide

Principle Objective 5.0 - To validate the effectiveness of utilizing the LDB and a guide to IEP's in improving leisure functioning of exceptional children and youth.

Task 5.1 - Identify the field test population and locations for application of the LDB and IEP guide

Task 5.2 - Evaluate the utility of the LDB and IEP guide

Task 5.3 - Analyze the results of evaluation of the LDB and IEP guide

Task 5.4 - Prepare a written summary report of the utility of the LDB and IEP guide

Principle Objective 6.0 - To disseminate the project materials to appropriate persons and agencies in order to affect a flow of information.

Task 6.1 - Determine a comprehensive dissemination plan which is functional, economically feasible, and effective

Task 6.2 - Submit quarterly reports which update OSE and others on the project progress

Task 6.3 - Limited dissemination of project materials developed in Principle Objectives 1.0, 2.0, 3.0, and 4.0 for the purpose of evaluation and recommendations

Subtask 6.3.1 - Dissemination of the LDB (Principle Objective 1.0) and the report of validity

Subtask 6.3.2 - Dissemination of the LDB Normative Data Report on normal and exceptional children and youth (Principle Objective 3.0)

Subtask 6.3.3 - Dissemination of the IEP guide (Principle Objective 4.0)

Task 6.4 - Determine appropriate packaging of LDB and IEP guide and prepare prototypes.

Principle Objective 7.0* - To identify and validate a list of characteristics of individuals who have achieved or are at leisure (i.e., characterize the ideal leisure state) and identify and validate attributes necessary to achieve this ideal state.

Task 7.1 - Identify panel of experts

Task 7.2 - Construct questionnaire to survey characteristics of ideal leisure state

Task 7.3 - Send initial survey

Task 7.4 - Compile a master list of characteristics identified by respondents

Task 7.5 - Construct questionnaire to rank characteristics of ideal leisure state and identify attributes of individuals necessary to achieve ideal leisure state

Task 7.6 - Send second survey

Task 7.7 - Compile results and list major characteristics of ideal leisure state, attributes, and competencies necessary to achieve ideal leisure state and theoretical, empirical, or intuitive basis for inclusion of each element

*New Objective not in original project proposal.

Summary by Year

During the first year of the project (1979-80) a number of major accomplishments which helped fulfill the purpose of the grant were completed. These accomplishments included the conceptualization and development of a prototype leisure diagnostic battery; initial efforts to bench test the instrument and collection of reliability and validity data. Other major accomplishments were the establishment of a Local Advisory Committee (LAC) and a National Advisory Committee (NAC) to act as support, advisory, and feedback groups for the battery conceptualization and development process.

The establishment of a communication network for the dissemination and retrieval of information was another major accomplishment. A project newsletter as well as presentations or attendance at several major conferences were the major means utilized to accomplish this objective.

During Year Two of the project (1980-81) orderly progress toward completion of the project objectives was achieved. These accomplishments included completion of a conceptual study to further establish the rationale and content for the LDB; collection of field test data for the Orthopedically Impaired (OI) Version of the LDB; revision of the OI Version based on field test data; and collection of pilot test data for the OI Version of the LDB. Based on this later data, a final revised version of the OI Version was prepared. In addition, a version of the LDB for the Mentally Retarded was prepared, bench tested, field tested, revised, and pilot tested. Finally, a preliminary version of the IEP guide was prepared. Dissemination of information regarding project progress was also continued via a project newsletter, presentation or atten-

dance at conferences, and responding to requests for information about project deliverables.

Finally, during the third year of the project (1981-82) a number of major project objectives were accomplished which yielded usable versions of the Leisure Diagnostic Battery, a User's Guide, and a Remediation Manual. In addition, a major summary report was written outlining the theoretical and empirical structure of the LDB and giving detailed reliability and validity data. Needed work to make the developed materials even more useful (valid and reliable) and applicable were summarized. This work was outlined as a part of a grant submitted to Special Education Program (Research and Innovation) for future funding of the continued development of the LDB.

The following sections give an overview of the LDB conceptualization and development. At the conclusion of these sections the report materials eminating from the LDB Project are listed and annotated. This should supply the interested reader with an indepth overview of the entire LDB Project effort. Finally, a section on future needs is included. This material basically forms the basis of an already submitted grant proposal to Special Education Programs.

The Leisure Diagnostic Battery: Conceptualization & Development

What is leisure? The debate has seemingly gone on forever. The consequences of failing to come to grips with our root concept has made it difficult to convince others of the value of leisure "services" and proposed efforts to improve leisure functioning. In an era of accountability and increasing demands for professionalization, operationalizing our key concepts is essential, if we are to be "part of the treatment team," an accepted profession, or of much greater importance, of use to the recipients of our services. Thus the Leisure Diagnostic Battery Project is an attempt to provide an overall process for assessing the leisure functioning of handicapped children and youth (but ultimately anybody) and divising strategies for improving functioning based on data from the assessment process. The following material outlines the conceptual foundation of the LDB; the specific instruments making up the LDB; and an overall remediation process based on assessment data. Efforts to establish the reliability and validity of the LDB are also described.

Conceptual Foundation: Perceived Freedom and Leisure

Perhaps the most universally agreed upon condition which is characteristic of optimal leisure functioning is the concept of freedom. The "profound and intimate relationship between freedom and leisure" is recognized by leading researchers and conceptual thinkers in the leisure services field. Based on two studies involving the relationship of freedom to leisure, Iso-Ahola (1980) concluded that "...the quality of leisure experience during non-working hours can be ameliorated by enhancing a person's perceived

freedom and the intrinsic motivation in his leisure activities." Bregha (1980) similarly has stated that "...leisure is undoubtedly the most precious and also most fragile expression of our freedom."

Perhaps the behavioral manifestation of freedom which is most closely associated with leisure functioning is playfulness. The playful individual is one who is spontaneous in thinking and in acting, who has a good sense of humor, and whose day-to-day behaviors reflect a general disposition of happiness and joy (Lieberman, 1977). This spontaneous, joyful approach to life may be inhibited by numerous factors both internal and external to the individual. These factors might include social pressures, overbearing work obligations, and an absence of self-confidence and self-esteem. In the absence of such barriers, the individual is able to approach leisure playfully and to derive the many benefits emanating from perceived freedom in leisure.

Given that freedom is a critical regulator of leisure functioning, it becomes apparent that an assessment of an individual's leisure functioning requires a careful analysis of that individual's perception of his personal freedom. Through such an analysis, several elements of freedom become evident. Each of these elements may be considered to be part of one of two major aspects of freedom: "freedom from" or "freedom to."

An individual's leisure functioning may be optimal when she is free <u>from</u> constraints in her environment. These constraints may be characteristic of the individual or characteristics of her environment. An individual may, for example, lack knowledge of leisure opportunities in her community. Without this knowledge, the indi-

is restricted to a more limited range of alternatives, many of which may not be compatible with her interests and competencies. Thus, knowledge of such aspects of opportunities as what services are offered, who may participate, where the services are offered, and how much they cost provide the individual with "freedom from" a particular personal barrier to optimal leisure functioning.

In addition to knowledge of leisure opportunities, numerous other personal and environmental barriers to optimal leisure functioning may exist. These barriers might include lack of accessible facilities, overbearing time constraints, lack of needed financial resources, lack of available opportunities, and poor social skills. Such barriers might also include prohibitive values, attitudes, and social norms which the individual believes are held by friends and acquaintances or by the society as a whole. The existence of one or more of these barriers may create a general overall perception of many prohibitive barriers in an individual's environment. If such barriers are present, the enhancement of the individual's leisure functioning must involve not only the elimination of the barrier itself, but also the elimination of the perception of that barrier. In the process, the individual must be "freed from" both personal and environmental barriers.

Besides being "free from" personal and environmental barriers, an individual must feel "free to" pursue leisure in the manner of his or her choice. Although these "freedom to" elements may also be considered a "personal barrier," they are also considered to be associated with a particular emotion, feeling, or state of arousal. Three elements of this feeling of "perceived" freedom are discussed

by Iso-Ahola. These elements include a perception of control, personal competence, and intrinsic motivation (Iso-Ahola, 1980).

One aspect of "freedom to" is perceived control. The individual who believes that he has the ability to control the process and outcome of an experience or situation through his own efforts and abilities is considered to be internally controlled. On the other hand, the individual who believes that the process and outcomes of experiences are mostly determined by fate, luck, and/or powerful others is considered to be externally controlled. A perception of internal control is facilitative of freedom because the individual believes that he is able to determine the outcomes or consequences of his involvement in activities or situations. The more one feels capable of determining these consequences, the more freedom he feels to become involved or to pursue leisure. Leisure functioning, therefore, is enhanced.

In order to feel comfortable or to feel free to particiapte in an activity, one must feel some degree of personal competence in that activity. This perception of competence provides the individual with a degree of assurance that his involvement will be rewarding and satisfying and that the probability of failure resulting in an embarrassing or frustrating experience is unlikely. Perceived competence, therefore, becomes a probabilistic belief about the likelihood of a positive experience resulting from a given endeavor based on the individual's perception of his abilities in that activity or situation. The individual who sees him/herself as competent in a variety of activities is more amenable to a high degree of leisure functioning because he can expect a

positive experience to result from participation in many different activities and situations. The individual who perceives himself as competent, therefore, possesses a sense of "freedom to" pursue leisure.

A third aspect of "freedom to" is intrinsic motivation. Intrinsic motivation refers to the extent to which individuals engage in certain behaviors for intrinsic reasons, such as pleasure, enjoyment, curiosity, or the satisfaction of internal needs (Deci, 1975). An extrinsically motivated behavior, on the other hand, is one in which the individual becomes involved due to the presence of external influences such as rewards and prizes or threats and sanctions. Intrinsic motivation, therefore, is characteristic of adequate leisure functioning. The leisure behavior of the intrinsically motivated person is determined by her preferences and interests rather than being determined by outside influences. Intrinsic motivation describes the individual who feels "free to" pursue his personally preferred leisure involvements.

Intrinsic motivation is closely related to perceived competence and control. Deci (1975), in fact, suggests that personal control and competence are internal needs and that actions taken to alleviate these needs are, therefore, intrinsically motivated behaviors. Other internal leisure related needs include catharsis, compensation, elimination of surplus energy, a need for creative expression, and a need to maintain an optimal level of arousal (Ellis, 1973). The placation of such needs involves the seeking out of optimal challenges in one's environment. These optimal challenges may be affected by the activities which the indivi-

dual chooses or by the way in which one participates in activities.

Collectively, internal control, perceived competence, and intrinsic motivation define feelings of "freedom to" pursue leisure. Iso-Ahola (1980) discusses this relationship and cites several studies supporting the belief that a causal relationship exists among these closely related concepts. Also, it is important to note that individuals need "freedom from" personal and environmental barriers. Thus, the LDB outlines a process of assessment of "freedom from" and "freedom to," along with the development and implementation of remedial efforts in identified areas of deficiency.

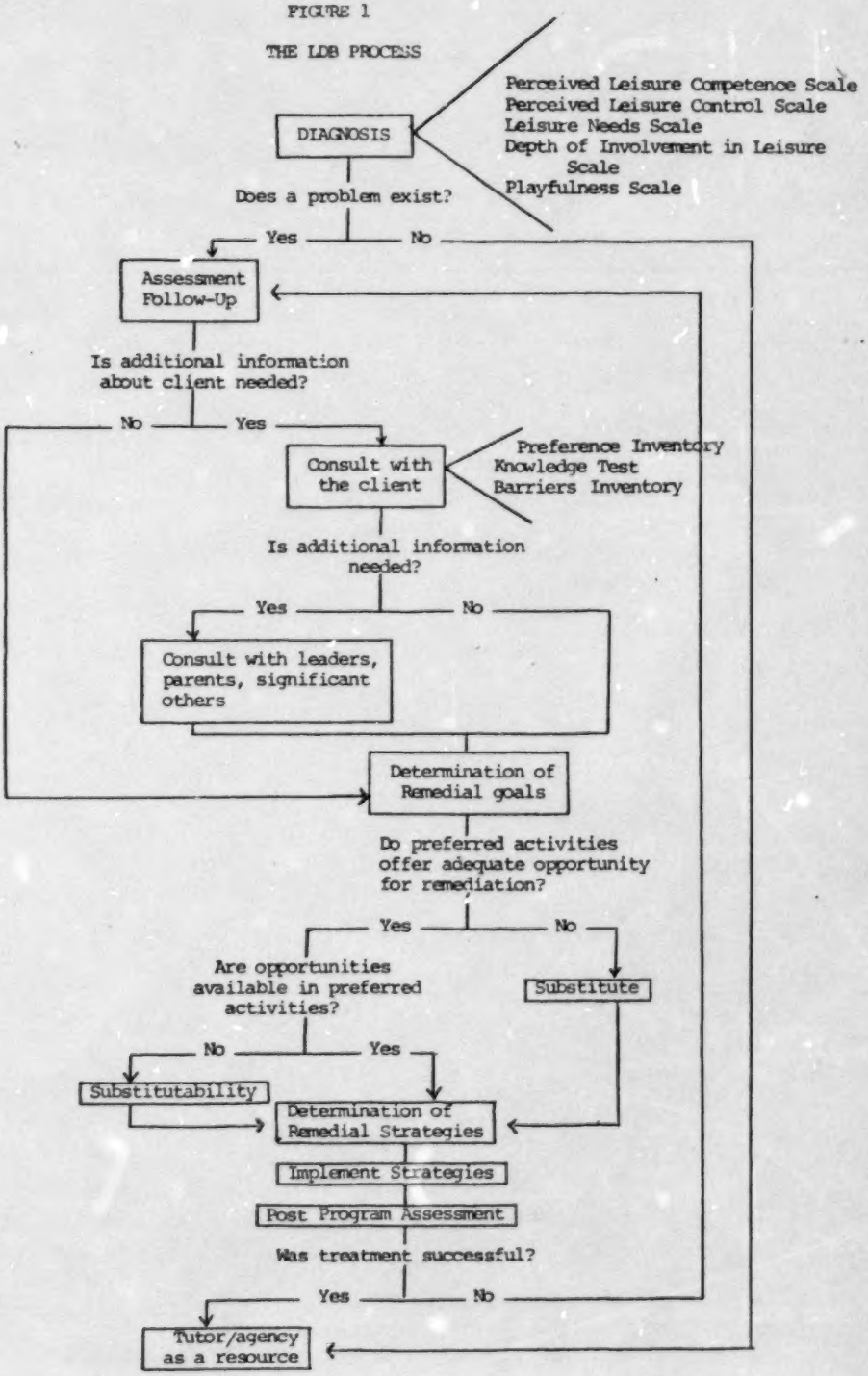
The LDB Process

LDB results form the basis of an overall "LDB process" of assessment through remediation. As shown in Figure 1, that process begins with assessment of "freedom to." Five scales are invovled in this phase of the process. These include the Perceived Leisure Competence Scale, the Perceived Leisure Control Scale, the Leisure Needs Scale, the Playfulness Scale, and the Depth of Involvement in Leisure Experiences Scales. All items are summed across these five scales to obtain a "freedom to" or a "Perceived Freedom" score.

The second phase of the LDB process, the "assessment follow-up," involves the identification of sources of barriers prohibiting a sense of "freedom from." Two scales are included in the LDB for this purpose. The "Knowledge of Leisure Alternatives Test" is intended to provide users with an indication of the client's degree of awareness of leisure opportunities in his/her environment. The

FIGURE 1

THE LDB PROCESS



lack of awareness of these alternatives is thought to be a major barrier to a state of "freedom from." The "Barriers to Involvement in Leisure" scale is the second instrument measuring a "freedom from" element. The scale is intended to measure individuals' general perceptions of various personal and environmental barriers to their leisure activities. Included on the scale are items dealing with such constraints as architectural barriers, financial barriers, time barriers, and transportation barriers. Both the "Knowledge of Leisure Opportunities Test" and the "Barriers to Leisure Invovlement" scale are considered to be major inhibitors of perceived freedom (feeling "freedom to").

The reader should note the LDB process does not assume that the "Knowledge" and "Barriers" instruments provide a comprehensive assessment of "freedom from" constraints to leisure. In fact, numerous other problems may be present. The individual's psychomotor skills may be inadequate. His social skills may be poor. A prohibitive cultural barrier may be present. Each of these is an area in which active barriers may be prohibiting feelings of "freedom to." Relative to the LDB process, leaders may choose to follow up with assessments in any of several areas following an initial diagnosis of limited perceived freedom. These assessments may take the form of formal testing or informal consultations with the client or significant others in the client's life. This "consultation" phase is the third phase of the LDB process.

The fourth and fifth phases involve the delineation of remedial objectives and the implementation of remedial efforts associated with those objectives. This is a rather complex process

which relies heavily upon attribution theory as a means of remediating deficiencies. Briefly, the approach is individualized, focusing on the nature and content of interactions between the client and the leader. In this approach, activities serve only as the medium within which these interactions take place. The process thereby becomes sort of an unobtrusive approach to counseling. The process is far removed from and shows greater promise than traditional approaches which involve activity analysis and establish the activity as the central aspect of remediation. This process is discussed in depth in the Leisure Diagnostic Battery Remediation Guide (1982).

The sixth and final step in the remediation process is the post-treatment assessment. This step is needed to determine the effectiveness of the remediation strategies in enhancing the client's leisure functioning. As suggested by Figure 1, the step involves the remediation of areas identified by the primary diagnosis instruments and repeating the LDB process for deficiencies identified. If the same deficiencies are identified in the second administration of the scales, the leader may conclude that remedial efforts were ineffective. If, on the other hand, deficiencies are identified in new areas, the leader will know that either new problems have emerged in the process or that, for that individual, problems are aligned in hierarchical fashion with the removal of one barrier simply leading to the emergence of the next. Each of these possibilities has implications to the development of remediation objectives and strategies.

Development of the LDB

Scale development within each LDB component area followed a very meticulous process. A comprehensive review of literature relative to each component was conducted. This review enabled the project staff to delineate subcategories or domains of each concept to be assessed. Identified domains to be included in the Playfulness component, for example, were cognitive spontaneity, physical spontaneity, social spontaneity, manifest joy, and sense of humor (Liebermann, 1977). Domains of Perceived Competence, similarly, included cognitive competence, physical competence, social competence, and physical competence (Harter, 1979). Based on this review of literature, a conceptual paper describing the rationale and structure underlying each LDB scale was developed. This paper is available upon request from North Texas State University, Division of Recreation and Leisure Studies. The domains identified for inclusion on each scale are included in Table 1.

The identified domains of each concept formed a content outline for each scale. Scale items were developed from this outline. In the initial phase of development, an attempt was made to maintain balance within each scale by constructing an equal number of items to represent each domain. In latter rounds of testing, this principle was relaxed a bit in order to maximize homogeniety of the items. Although conceptual domains within scales of the final version may, in some cases, be unequally weighted in terms of numbers of items, all key areas are in some way represented on each scale.

TABLE 1

COMPONENTS, PURPOSES, AND DOMAINS OF THE LDP SCALES

SCALE	PURPOSE	DOMAINS
1. Scale Measuring "Freedom To"		
Perceived Freedom (sum of scales A-G)	To enable the assessment of clients' perceived freedom ("Freedom To") in leisure.	A scale score is obtained by summing across all items of scales measuring "Freedom To"
A) Perceived Leisure Competence	To enable the assessment of clients' perceptions of their degree of personal competence in recreation and leisure endeavors	1. Cognitive Competence 3. Physical Competence 2. Social Competence 4. General Competence
B. Perceived Leisure Control	To enable the assessment of clients' degree of internality, or the extent to which they control events and outcomes in their leisure experiences.	Each item is designed to reflect the presence or absence of an internal stable tendency for attributions
C. Leisure Needs	To enable the assessment of clients' abilities to satisfy intrinsic needs via recreation & leisure experiences.	1. Relaxation 6. Gregariousness 2. Surplus energy 7. Status 3. Compensation 8. Creative expression 4. Catharsis 9. Skill development 5. Optimal arousal 10. Self image
D. Depth of involvement in leisure experiences	To enable the assessment of extent to which individuals become absorbed, or "flor" during activities.	Each item reflects an element of Csikzentmihelyi's "flow" concept: 1. Centering of attention 2. Merging of action and awareness 3. Loss of self consciousness 4. Perception of control over self and environment 5. Non-contradictory demands for action with immediate feedback
E. Playfulness	To enable the assessment of clients' degree of playfulness	Based on Lieberman's (1975) work with the playfulness concept: 1. Cognitive spontaneity 2. Physical spontaneity 3. Social spontaneity 4. Manifest joy 5. Sense of humor
2. Scales Measuring "Freedom From"		
Barriers to Leisure Involvement	To enable the identification of problems clients encounter when trying to select or participate in recreation & leisure experiences.	1. Communication 6. Lack of Opportunities 2. Social Skills 7. Lack of ability 3. Decision Making 8. Financial 4. Desire/Interest 9. Mental 5. Time 10. Accessibility
Knowledge of Leisure Opportunities	To enable the determination of individuals' knowledge of specific information concerning leisure opportunities.	1. Who can participate 2. What activities are available 3. Where opportunities are present 4. When opportunities occur 5. How much cost is involved in various activities.
3. Scale used in the remediation process		
Leisure Preference	To enable the determination of individuals' preferred leisure activities and their preferred style of participation.	1. Sports 5. Music & Drama 2. Arts & Craft 6. Active/Passive Style Pref. 3. Mental & Linguistic 7. Group/Individual Style Pref. 4. Nature 8. Risk/Non-risk Style Preference

Development of the LDB and Field Testing

Several versions of the LDB have been developed and field tested to date. Reports covering analysis of the data collected and resulting changes in conceptualization or instrumentation are available.

As noted previously, two versions of the LDB have been developed. Version A is intended for 9-14 year old "normal" or orthopedically impaired individuals, and/or higher level educable mentally retarded individuals. Version B is thought to be appropriage for lower functioning educable mentally retarded individuals and/or lower functioning orthopedically impaired individuals. Version A is intended to be group administered with the respondent marking their own answers. Version B is intended to be individually administered with responses marked by the respondent or administrator depending on the degree of difficulty the respondent encounters with self-marking.

Several rounds of testing were utilized in the process of refining the LDB and its individual components. Included were 9-14 year olds in the following samples in Table 2.

In addition, LDB scales or adaptations have been utilized in several other research projects on the condition that data would be made available to our project staff. These data have helped provide further evidence of reliability and validity. These projects have been included in Table 3.

TABLE 2

LDB Administration

Sample	Year	Sample	Subjects	LDB Version
A	Spring 1980	City of Dallas, Texas Summer Playground Program	73	A Experimental
B	Fall-Winter 1980	Individuals with orthopedic impairments - public schools and hospitals throughout U.S.	192	A Experimental
C	Fall-Winter 1981	Educable mentally retarded individuals - public schools and hospitals throughout U.S.	292	B Experimental
D	Fall-Winter 1981	"Normal" students from public schools throughout U.S.	206	A Experimental
E	Spring 1982	"Normal students from public schools, Columbia, Missouri	200*	A Final
F	Spring 1982	Educable mentally retarded individuals from public schools in Columbia, Missouri	104*	B Final

*Test-retest done with 84 individuals
**Test-retest done with 43 individuals

TABLE 3

Other LDB Administration

Sample	Year	Sample	Number of Subjects	LDB Version
G	Spring 1981	V.A. Clients from throughout the U.S. - over 18 years of age	1,800	Adapted scales from A - Experm.
H	Spring 1982	9 to 14 year old students from Oklahoma School for the Deaf	72	A Final
I	Summer 1982	Playground program participants Austin Parks & Recreation Dept., ages 8-14	300	Short form of A - Final
J	Summer 1982	Elderly half home residents, Mental Health system, State of Missouri - Project LIFE	150	Short form of A - Final

Many significant contributions to understanding the conceptualization of the LDB were derived from the scale development and refinement process. Data analysis repeatedly provided evidence of the interrelationship of scales measuring "freedom to" in the initial diagnosis and of scales measuring constraints to freedom ("freedom from") in the assessment follow up. In addition, data analyses suggested the inappropriateness of early attempts to include a scale measuring attitudes toward leisure as part of the LDB. It also revealed the inadequacy (and possible redundancy) of a scale designed to measure a "voluntary reward" dimension of intrinsic motivation. Results also assisted in the conceptualization and refinement of remedial strategies and the overall process of instrument development.

Item analysis was extensively utilized to refine instrumentation. Factor analysis, inter-item correlations, and multiple correlations of each item with all other items on each scale were all used to select items for inclusion in each updated LDB version. Using these processes, it was possible to develop reliable scales of approximately 20 items for each scale from an original pool of twice as many items.

Reliability and Validity Results

An extensive report has been prepared outlining reliability and validity results to date. Major findings are summarized below. Results are mainly based on data collected utilizing final Versions A and B.

Table 4 lists stability data for "Final" Version A scales while Table 5 lists Alpha coefficients (based on Sample E).

TABLE 4

Stability of Version A Scales*

Scale	r**	No. of Items
Perceived Freedom	.89	95
Perceived Leisure Competence	.82	20
Perceived Leisure Control	.81	17
Leisure Needs	.75	20
Depth of Involvement in Leisure Experiences	.77	18
Playfulness	.77	20
Barriers to Leisure Opportunities	.62	24
Knowledge of Leisure Opportunities	.61	28
Preferences Subscales		
Sports	.47	12
Music	.61	12
Nature	.69	12
Mental and Linguistic	.61	12
Arts and Crafts	.38	12
Active-Passive Style	.67	10
Group-Individual Style	.63	10
Risk-Non Risk Style	.82	10

*Based on N = 84

**Pearson Product-Moment Correlation Coefficients

TABLE 5

Alpha Reliabilities of Version A Scales*

Scale	Alpha	No. of Items
Perceived Freedom	.96	95
Perceived Leisure Competence	.89	20
Perceived Leisure Control	.88	17
Leisure Needs	.90	20
Depth of Involvement in Leisure Experiences	.88	18
Playfulness	.90	20
Barriers to Leisure Opportunities	.86	24
Knowledge of Leisure Opportunities	.90	28
Preferences Subscales		
Active/Passive Style	. 57	10
Group/Individual Style	.71	10
Risk/Non-Risk Style	.57	10

*N = 200

From these data it was concluded that:

1. Stability is adequate for diagnostic purposes for the overall measure of perceived freedom and most of the subscales. However, several of the individual scales are borderline or inadequate (barriers, knowledge, preferences).

2. All internal consistency coefficients are considered adequate for diagnostic purposes with the exception of the preferences sub-areas.

Data for Sample H (stability and alpha) and the retest group along in Sample E (alpha only) basically confirmed these findings.

Table 6 lists stability coefficients for "Final" Version B scales while Table 7 lists Alpha coefficients (based on Sample F). From these data it was concluded that:

1. While reliability coefficients are generally lower than desirable for diagnostic purposes, several circumstances indicate that this version shows more promise than evidenced by the data. Detailed analysis of the data suggests that problems with a small number of "out-liers" and the small sample size may be sources of the low coefficients. Another problem may have to do with the way the data were collected and/or problems that mentally retarded individuals have with the current approach to measurement. Since, the "Final" version was constructed based on item analysis of the earlier longer version, shrinkage associated with the interitem phi coefficients may also play some role here (e.g., Lord and Novick, 1968).

2. Further development of testing of an LDB version for more severely retarded individuals is warranted. Other means of eliciting responses or asking questions may have to be tried. The fact that the perceived freedom scale achieved a high degree of internal consistency also warrants not giving up totally on the current approach. In addition, an experimental Version B had better psychometric properties and perhaps was shortened or changed too much for the "Final" version.

In general the results of the above efforts indicate no great inconsistencies in correlations or factor structures from the hypotheses derived from conceptualization of the LDB. The factor analyses of different data sets tend to yield two factors, one conforming

TABLE 6

Stability of Version B Scales*

Scale	r**	No. of Items
Perceived Freedom	.75***	99
Perceived Leisure Competence	.46	19
Perceived Leisure Control	.64	20
Leisure Needs	.79	20
Depth of Involvement in Leisure Experiences	.66	20
Playfulness	.68	24
Barriers to Leisure Opportunities	.55	20
Knowledge of Leisure Opportunities	.52	24
Preferences Subscales		
Sports	.43	12
Music	.64	12
Nature	.48	12
Mental & Linguistics	.32	12
Arts & Crafts	-.09	12
Active/Passive Style	.27	10
Group Individual Style	.56	10
Risk/Non-Risk Style	.41	10

*N = 43
**Pearson Product Moment Correlation Coefficient
***r=.89 with the four most extreme outliers removed

TABLE 7

Alpha Reliabilities of Version B Scales*

SCALE	ALPHA	NO. OF ITEMS
Perceived Freedom	.90	99
Perceived Leisure Competence	.73	19
Perceived Leisure Control	.68	20
Leisure Needs	.77	20
Depth of Involvement in Leisure Experiences	.71	20
Playfulness	.75	20
Barriers to Leisure Opportunities	.76	24
Knowledge of Leisure Opportunities	.83	28
Preference Subscales		
Active/Passive Style	.63	10
Group/Individual Style	.66	10
Risk/Non-Risk Style	.67	10

*N = 100

to the "freedom to" area and the other referring to the "freedom from" area. Low reliability may account for some of the observed inconsistencies and efforts to sharpen scale content may be necessary in other cases. Again, a detailed report is available to outline the full validity findings.

Correlation of scale scores with demographic variables indicate in general that leisure functioning as we've defined it is not associated with gender, age, or IQ. There may be some cultural bias with several scales (Preference and Knowledge) correlating with race. Correlations with place of residence (home/institution) and type of class (special/regular) indicate some possible positive effects of special attention and care.

Correlations with the Piers-Harris self-concept scale is weak but the self-concept scale correlates highly with Coopersmith's desirability scale. On the other hand, the LDB scales do not correlate highly with social desirability. Thus, while social desirability outcome is favorable, a better measure of self concept will have to be found.

Further efforts to assess the validity of the LDB are clearly warranted. In particular, efforts to ascertain discriminant and convergent validity as well as predictive validity are paramount. Only when such data are available can a strong case be made for the full utility of the LDB in the assessment and remediation process.

Conclusion

The LDB process may usher in a new era of recreation services. A comprehensive system of assessment and remediation based on sound theory and empirical research has been proposed. Refinements and extensions from this pioneering effort may elevate the status of recreation leader from one of being someone who simply plans activities to a status of being a highly respected and essential component of the process of life embellishment, whether the task at hand be rehabilitation, habilitation, education, or recreation. In order for this to occur, however, drastic changes are needed in the field. We must become theorists, critics, and pioneers. We must be willing and ready to make changes, to propose, to question, to wonder, and to think in terms of that which is possible rather than only in terms of that which is. From such thought can emerge theory; and from theory, progress.

Deliverables Based on the LDB Project

Version "A" Scales (Final Version) and Version "B" Scales (Final)

Scales to be used for assessing leisure functioning of handicapped children and youth developed by the Leisure Diagnostic Battery Project.

Picture Booklet for Version "B" (Final Version)

Picture booklet used in administering Preference and Knowledge components of Version B of the LDB.

User's Manual (Version B) (still needs updating)

Detailed instructions for administering the LDB Version "B." Additional work needs to be done to make this document totally usable.

User's Manual (Version A) (August, 1982)

Detailed instructions for administering and scoring the LDB (Version A).

The LDB Remediation Guide (August, 1982)

A discussion of the implication of remediation of the LDB Scale Scores.

LDB Theoretical and Empirical Structure (August, 1982)

Comprehensiv report of the development, reliability, and validity of the LDB. eport assesses the strengths and weaknesses of the LDB to date and makes recommendations for further development.

LDB Background, Conceptualization, and Structure (May, 1982)

This document outlines in detail the conceptual background of each scale in the LDB. Several earlier versions of these papers were developed, reviewed, critiqued, and modified to their present form.

Report on the Field Review of the LDB Manual (May, 1982)

Reports field reviewers comments concerning the LDB User's Manual and the question booklets. Suggestions for improving the User's Manual were given. One critical suggestion involved developing a separate User's Guide and Remediation Manual.

The Development of an LDB for the Mentally Retarded (June, 1981)

Discusses the development of a prototype MR version of the LDB. Report includes the actual scales as well as considerations of sentence structure of items, answer format, how the MR version was developed, administration procedures, reliability information, and general comments.

Assessing Leisure Behavior in Handicapped Children and Youth: A Comprehensive Approach (June, 1981) and Individualization in Therapeutic Recreation Services: An Approach to Client Assessment (June, 1981)

Papers developed by project staff to discuss the place of the LDB in a comprehensive assessment process. Materials were presented at several conferences and workshops.

LDB Data Summary Tables - LDB MR Version Pilot Test (November, 1981)

Document presents a data summary of the first large scale testing of the LDB with 293 OI individuals. The data was used to refine the OI Version and help develop the MR Version.

Readability of Version Two of the LDB (September, 1981)

Describes efforts to assess the readability of Version Two of the LDB. The developed process was utilized to ascertain readability of all future versions of the LDB.

Report on Testing Format, Timing, and Protocol Recommendations for the Revision of the LDB IO Version for MR Testing (June, 1981)

Discusses materials reviewed and resources consulted relative to the testing of the mentally retarded. Information was used to make recommendations regarding testing format, timing, and protocol for the MR Version of the LDB.

LDB Data Summary Tables - OI Version Pilot Test (May, 1981)

Describes the data collected on the first prototype version of the LDB MR Version. Data for 291 MR individuals was analyzed and discussed. Data was used as a basis for future scale development.